RFID UHF fixed

Industrial Reader

VI-IR610P

Product Information Guide

Contents

1 Product Overview

The VI-IR610P reader is the latest generation product developed by our company. The reader can read and write "electronic tags" (or "cards"-the meaning of the two in this manual is equivalent) that meets the EPC CLASS1 G2 standard. The reader can be used in data acquisition systems such as card issuance and personnel access control management.

1.1 Shape and interface

The VI-IR610Preader/writer adopts an aluminum alloy shell and can be installed in an indoor cabinet or an outdoor protective box with good ventilation, dust and rain conditions.

The VI-IR610P reader is divided into antenna interface end face, communication interface end face and LED indicator face from the appearance:

（1） VI-IR610P antenna port (P 1-1-1): ANT1、 ANT2、ANT3 and ANT4

P 1-1-1

（2） Communication interface face (P 1-1-2):

P 1-1-2

P 1-1-2 communication interface has the following characteristics:

A. power port: DC12V female

B. RJ45 communication interface: Standard version: Connect the cable to the network directly

C. POE power supply (The switch must support 1, 2, 3, and 6 pins for power supply).

Optional version: optional super network port, no POE power supply

D. RS232

E. GP IO

GPIO (Double 10 stitches)– Front view reader interface panel

GPIO interface terminal definition (from left to right):

继电器 DO1-	继电器 DO2-	继电器 DO3-	继电器 DO4-	触发器 DI2	韦根26 WD1_1	韦根34 WD2_1	RS485-	NC	地 GND
继电器 DO1+	继电器 DO2+	继电器 DO3+	继电器 DO4+	触发器 DI1	韦根26 WD1_0	韦根34 WD2_0	RS485+	NC	地 GND

Special attention: "GND" in GPIO becomes RJ45 network port on the right

（3）LED light (P 1-1-3)

P 1-1-3 LED light

LED Instruction meaning:

Red light-power indicator, red light on means the power is on.

Green light-RF light, flashing green light indicates that the reader is receiving/sending data and commands.

Yellow light-running indicator, flashing yellow light indicates that the device is operating normally.

1.2 Performance

(1) Working frequency:

865~868MHz (EU)

902～928MHz (US)

920~925MHz（CN）

Note: Please adjust the working frequency according to the

country or region before use, so as not to interfere with other radio communication equipment.

(2) Working mode: continuous (automatic), command, trigger.

(3) Working mode: continuous (automatic), command, trigger.

(4) RF power: 0～33dBm adjustable

(5) Communication rate: The serial port rate is 9600～115200bps, RJ45 is 10Mbps

(6) Reading distance: 0-25000mm (related to reader parameter configuration, antenna gain, tag type), writing distance: 0-1000mm (related to reader parameter configuration, antenna gain, tag type)

(7) Power supply: Method 1: DC12V/3A, **Support DC9V~24V wide voltage DC9V~24V**

Method 2：POE power supply (only supports 100M 1236 line sequence power supply)

(8) Support 4G (optional)

(9) Support WIFI (optional)

(10) minus 5° automatic heating device (optional) (customers can determine according to project needs)

(11) Power consumption: Maximum power consumption 15W

(12) Whole machine weight: about 1.32kg (complete set)

(13) Working temperature: -20℃～＋40℃.

(14) Buzzer: Built-in buzzer, every time the reader reads the electronic tag, it will sound.

Function

(1) Read and write tags: electronic tags that comply with EPC ISO18000-6C and ISO18000-6B

(2) It can read multiple EPC code labels of different lengths (16, 32, 48, 64, 80 or 96 bits) at the same time

(3) Read the EPC data of the selected tag

(4) Read the user area data of the selected label

(5) Read the data in the TID area of the selected tag

(6) Readable tag access and destruction passwords (both are 32 bits)

(7) EPC codes of different lengths (16, 32, 48, 64, 80 and 96 bits) can be written

(8) User area data can be written

(9) The password for tag access and destruction can be modified (both are 32 bits)

2 Product installation

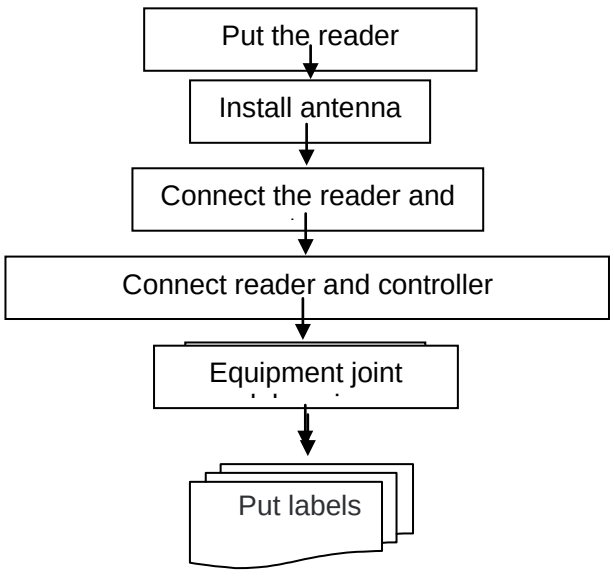
2.1 connected relation

In the application system, the connection relationship between the reader, microwave antenna, electronic tag, and controller (or PC) is shown in the following figure:

P 2-1-1

2.2 Installation Procedure

When installing the equipment, follow the following steps:



2.3 Install reader

The installation of the reader should pay attention to the following matters:

(1) The VF-747P reader has no special waterproof and dustproof treatment, and its working temperature range is: -20℃~+40℃; therefore, it is more suitable for working in an indoor environment. If you want to install it outdoors, you must put the reader and power converter in the protective box. The protective box is required to have the functions of rainproof, dustproof, heat preservation and heat insulation to provide a better working environment for the reader.

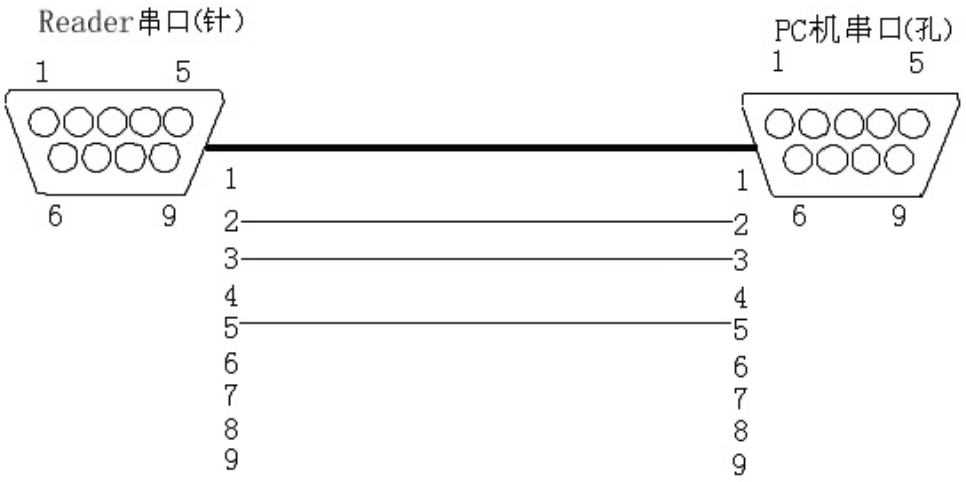
(2) The RF line distance between the position where the reader is placed and the antenna should not exceed 10 meters (3 meters is better).

(3) The maximum distance of reliable communication between the reader and the controller varies with the data interface

When using the RJ45 interface to communicate: Support 10M/100M transmission rate, using a network cable, it is recommended that the transmission distance should not be greater than 50 meters.

When using RS485 interface communication: the two wires RS485+ (brown) and RS485- (blue) on the reader should be connected to the corresponding two pins of the controller. It is recommended that the transmission distance should not be greater than 80 meters.

For RS232 interface: You can use the supporting cable to directly connect to the PC. It is recommended that the transmission distance should not be greater than 10 meters. The connection diagram is shown in the figure below:



P 2-2-1

2.4 Install antenna

The antenna installation needs to consider factors such as position, height and angle to meet the following application requirements:

(1) Ensure that the antenna beam range can cover the range of reliable reading of electronic tags.

(2) Ensure that the length of the RF cable from the antenna to the reader is not more than 10 meters, preferably not more than 3 meters.

(3) Depending on the specific application, the antenna can be installed horizontally top-mounted (gantry) or vertical side-mounted (post), but the polarization direction of the antenna must be consistent with the polarization direction of the electronic tag.

2.5 Connect the antenna and reader

The VF-747P reader provides 4 SMA male RF interfaces, which require low-loss coaxial cables to be connected to the antenna. Since the longer the cable length, the greater the attenuation of the high-frequency signal, the shorter the cable length is required for the application, the better. Increasing the length of the cable or using an ordinary cable will affect the reading and writing distance of the reader.

When the connection distance between the antenna and the reader is within 3 meters, it is recommended to use the1/2 feeder; when the distance is more than 3 meters, the 7/8 feeder. The cable length must not exceed 10 meters.

The cable connector is connected with the antenna and the reader terminal

Should be tightened. After the cable connector is tightened, the cable connector should be sealed by heating and shrinking or tightening with tape to protect the cable connector.

WIFI/4G connection port and antenna (this port is optional)

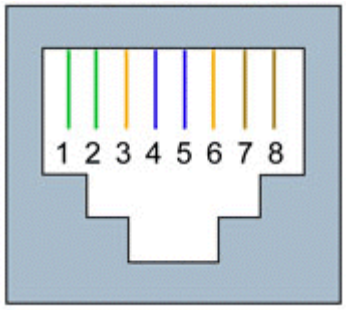
Note: It is not recommended to use ordinary cables to connect the antenna; it is not recommended to assemble the cable connector by yourself.

2.6 Connect the reader and the host computer

The VI-IR610P reader can be connected to the host computer (or PC) through either of the RS232 or RJ45 ports to receive commands and send data.

P 2-6-1

The reader is directly connected to the PC, as shown in the figure below, the wiring arrangement is as follows:



P 2-6-2

Pin 1 of the RJ45 port of the reader is connected to pin 3 of the RJ45 port of the PC, pin 3 of the RJ45 port of the reader is connected to pin 1 of the RJ45 port of the PC, pin 2 of the RJ45 port of the reader is connected to pin 6 of the RJ45 port of the PC , Pin 6 of the RJ45 port of the reader is connected to pin 2 of the RJ45 port of the PC, and the other pins are connected correspondingly. The reader and the PC are connected through the Hub, using a straight-through connection line.

（2） Connection through RS232 port

The RS232 port can be directly connected to the PC with the supporting cable. The length of the RS232 port connection line in the project should be less than 10 meters.

2.7 Connecting power Supplies

The VF-747P reader/writer adopts +12/3A DC power supply. Along with the reader, our company provides an AC/DC converter that meets this requirement. The power connection method is as follows:

(1) Check and confirm whether the voltage and working frequency of the AC power supply meet the requirements of: AC100～240V/50Hz;

(2) Insert the DC output plug of the power converter into the +12V DC input port of the reader

(3) Insert or connect the 220V AC power input line of the converter to the AC power supply line.

(4) The red indicator light of the power supply of the reader should be on, indicating that the power input is normal.

2.8 The equipment alignment

The key of device alignment is to adjust the height, direction Angle and inclination of the antenna so that the reader can read the electronic tags within the desired range. The debugging method is:

(1) Turn on the power of the reader, set the reader to the timing working mode, close the parameter setting program and disconnect the connection with the PC.

(2) Turn off the power of the reader and then turn it on again, the reader will automatically enter the timing working state.

(3) Because the material of the identified object is different, the required label is also different. Therefore, when debugging, the electronic label should be affixed to the object with the same material as the surface of the identified object, and back and forth within the range where the label is expected to be read. Move objects. If the reader can read the electronic label correctly, the built-in buzzer will sound and the RF

The LED flashes.

(4) Carefully adjust the height and angle of the antenna to make the reading range the best.

Note: The reader only radiates microwave power when reading and writing tags. At this time, the installation and debugging personnel should be at least 70cm away from the antenna to meet the requirements of the US FCC for the human body.

Exposure to the maximum allowable radio frequency (RF) radiation requirements.

2.9 Attach label

In the application process of radio frequency identification system, labeling is often done. The issues that need to be paid attention to when labeling are:

(1) Use the adhesive glue recommended by the manufacturer.

(2) For labels applied to metal surfaces, special adhesive glue should be used.

(3) The position of the label on the surface of the object must also undergo field tests to ensure the best read and write effect.

3 Common Faults

Table 4-1 Common faults of readers and solutions

Failure phenomenon	Possible reason	Solution
Can't read card	Beyond the reading area of the reading and writing module	Move the card closer to the antenna of the reader module
	The antenna is damaged	Replace the reader antenna
	The parameter RF Power value is too low	Restore factory parameters
	Bad label	Change to other label test
	Module is broken	Contact technical support
Unable to connect to the reader module	POE for power supply	Contact technical support
	Com is occupied or broken	Check the port occupancy through the device manager and test whether the port can communicate
	The data line is broken or not connected	Replace the data cable or check the connection of the data cable
	Com port occupied port out of range	Check the com port through the device manager, and change the com port to a value within 10
	Module is broken	Contact technical support
Card reading distance is very close	Antenna not connected	Check the antenna connection
	The parameter RF Power value is too low	Restore factory parameters
	The label and the antenna polarization direction are inconsistent	Rotate the label 90 degrees
	Module is broken	Contact technical support
	Bad label	Change other labels

1.Use careful with the earphone maybe possible excessive sound pressure from earphones and headphones can cause hearing loss

2. CAUTION : RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS
3. The product shall only be connected to a USB interface of version USB2.0
4. Adapter shall be installed near the equipment and shall be easily accessible
5. Operation temperature:-20~40°C
6. The plug considered as disconnect device of adapter
7. The device complies with RF specifications when the device used at 50cm from your body
8. AC adapter:
Model No.: TDX-1203000
Input: 100-240V~, 50/60Hz,2.0A
Output: 12.0Vac，3.0A
Shenzhen VANCH Intelligent Technology Co.,Ltd , hereby declares that this UHF RFID Industrial Reader is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.
This information has to be presented in such a way that the user can readily understand it. Typically, this will necessitate translation into every local language (required by national consumer laws) of the markets where the equipment is intended to be sold. Illustrations, pictograms and using international abbreviations for country names may help reduce the need for translation.

Max power:

RFID: 25.353
865MHz-868MHz

FCC Statement

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

The distance between user and product include antenna should be no less than 20cm during normal operations.

IC STATEMENT

This device complies with Industry Canada licence-exempt RSS standard(s)

Operation is subject to the following two conditions:

(1) This device may not cause interference, and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. End user must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

To comply with RF exposurerequirements, a minimum separation distance of 20mm must be maintained between the

user's body and the handset, including the antenna. Third-party belt-clips, holsters, and similar accessories used by this device should not contain any metallic components. Body-worn accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided. Use only the supplied or an approved antenna.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

Ce dispositif est conforme aux normes autoriser-exemptes du Canada RSS d'industrie

L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.Cet équipement

est conforme avec l'exposition aux radiations IC définies pour un environnement

non contrôlé. L'utilisateur final doit respecter les instructions de fonctionnement spécifiques pour satisfaire la conformité aux expositions RF. Cet émetteur ne doit pas être co-localisées ou opérant en conjonction avec une autre antenne ou transmetteur.

Pour se conformer

aux exigences d'exposition aux radiofréquences, une distance minimale de 20 mm doit être maintenue entre le corps de l'utilisateur et le combiné, y compris l'antenne. Les pinces de ceinture, les étuis et autres accessoires similaires utilisés par cet appareil ne doivent pas contenir de composants métalliques. Les accessoires portatifs qui ne répondent pas à ces exigences peuvent ne pas se conformer aux exigences d'exposition RF et doit être évitée.

Utilisez uniquement l'antenne fournie ou une antenne approuvée